

REMARKS

- A. **Claims 1-4, 6-9, 11-14 and 16 are rejected under 35 U.S.C. §103(a) as being unpatentable over Xu, U.S. Publication No. 2004/0052263 in view of “*A Method of Transmitting PPP Over Ethernet*”, RFC 1516, Mamkos *et al.* (Mamkos), and in further view to Nyu *et al.*, U.S. Patent Publication No. 2003/0131133. The Applicant respectfully traverses this rejection for the following reason(s).**

The Examiner is respectfully reminded of MPEP §707.07(f), regarding answering all material traversed.

Claim 1

Claim 1 calls for a series of interconnected steps to occur if a client becomes disconnected from a server *in a manner other than by transmission of PPPoE Active Discovery Terminate (PADT) packets between said client and said server.*

Those steps include, in part, *said client transmitting a PPPoE Active Discovery Initiation (PADI) packet to said server; and following the transmission of said PPPoE Active Discovery Initiation (PADI) packet, said client checking a packet received from said server to determine whether the packet received from said server was a PPPoE Active Discovery Offer (PADO) packet or a session packet.*

A PPPoE connection between a client and a server is often disconnected due to

abnormality in a client's device or at a request of a user in the middle of transmitting and receiving data in a PPP session stage. Then, the user reboots the client's device and attempts reconnection. However, the client fails in reconnection because the server misrecognizes that the established connection is supported continuously. Of course, the server automatically terminates the connection by recognizing it as disconnection when it takes much time for the user to reboot the system. However, when rebooting the client's device can be done faster than the server recognizes its disconnection to the client, the server cannot automatically terminate connection. Therefore, the client fails in reconnection (refer to paragraphs [0008] and [0009] of the present invention). Xu does not recognize such problem at all.

The present invention aims for promptly terminating a PPP session which disconnected due to abnormality in the client's terminal but fails to connect continuously by server. On the other hand, Xu aims for reconnecting a PPP session by using information about the PPP session connected recently after terminating the PPP connection.

Xu transmits the end message in the steps of LCP (refer to Fig. 8) and Discovery Stage (refer to Fig. 10) which composed the PPPoE connection, and terminates the established connection. In this case, Xu determines to use PPPoE encapsulation. Thus, all connection attempts fail while the server recognizes the disconnection to the client even though the server misrecognizes that the established connection is supported continuously (but the session is disconnected because of abnormality in the client's terminal).

On the other hand, in the present invention, a) the client terminal determines whether

the server transmits a PADO packet response to the PADI packet when the client terminal transmits the PADI packet to reconnect with the server after rebooting, b) the client terminal regards the established session as supported continuously when the server does not transmit the PADO packet c) the client extracts a MAC address and session ID from the session packet, terminates the PPP session corresponding to the MAC address and session ID by transmitting a PADT packet which includes the MAC address and session ID to the server.

In paragraph [0061] of Xu the scenario of a lost connection (during a method 290 (Fig. 10) for determining whether a DSL network is using PPPoE encapsulation) leading to a timeout at the CO-side (central office-side) is addressed. Xu's invention provides a function which has been termed "fast connect recovery" under which information about the last successful connection is saved in the CPE (customer premises equipment) modem's memory.

In step 291, a LCP terminate-request packet is sent from the CPE modem to the CO modem using this stored information. LCP terminate-request packets provide a mechanism for closing an open connection.

A CO (central office) modem receiving a terminate-request packet must transmit a terminate-ack packet in response. Hence, if a terminate-ack packet is received (step 292), the CPE modem knows that PPPoE encapsulation is being used (step 293) since the PPPoE-encapsulated terminate-request was understood by the CO.

If a terminate-ack packet is not received, in step 292, a PADT (PPPoE Active Discovery Terminate) packet is sent in step 294. A PADT packet is defined under the discovery stage of the PPPoE protocol and serves to make sure that, if a connection did exist,

it is terminated. That is, the CO modem is **told to disconnect** any connections that it thinks exists and prepare to accept a new connection. At this point, Xu differs from Applicant's claim 1 wherein a series of steps are claimed when a client becomes disconnected from a server *in a manner other than by transmission of PPPoE Active Discovery Terminate (PADT) packets between said client and said server.*

Neither Mamakos nor Nyu suggest Xu be modified to not transmit a PADT packet. Therefore, the applied art teaches a PPPoE Active Discovery Initiation (PADI) packet is transmitted after transmission of the PADT packet, contrary to claim 1.

Accordingly, claim 1 is not obvious in view of the applied art, and the rejection should be withdrawn.

Additionally, in Xu, once a PPPoE Active Discovery Initiation (PADI) packet is transmitted (after transmission of the PADT packet), it is checked in step 296 to determine if a PADO packet is received.

Claim 1 calls for *following the transmission of said PPPoE Active Discovery Initiation (PADI) packet, said client checking a packet received from said server to determine whether the packet received from said server was a PPPoE Active Discovery Offer (PADO) packet or a session packet.*

In Xu, if the PADI code field 225 is set to 0x07, the packet is the PADO (PPPoE Active Discovery Offer), and it is determined that PPPoE encapsulation is being used (step 297). If the PADI code field 225 is set to 0x09, the packet is not the PADO (PPPoE Active

Discovery Offer), and it is determined that PPPoE encapsulation is not being used (step 298).

Also, claim 1 calls for *said client extracting a session-ID from said packet received from said server when it is determined that the packet received from said server is the session packet*. This step follows the step of *said client checking a packet received from said server, following the transmission of said PPPoE Active Discovery Initiation (PADI) packet, to determine whether the packet received from said server was a PPPoE Active Discovery Offer (PADO) packet or a session packet*.

Looking to Xu, the PADI packet was sent in step 295 and then it was determined whether a packet received was a PADO packet in step 296. In Xu, *when it is determined that the packet received from said server is not the PPPoE Active Discovery Offer (PADO) packet*, step 298 is performed.

Xu merely states that in step 298 the CPE modem concludes that PPPoE encapsulation is not being used.

Accordingly, there is no teaching of *said client extracting a session-ID from said packet received from said server when it is determined that the packet received from said server is the session packet*.

Additionally, there is no teaching of *said client loading said session-ID into a Session-ID field of a PPPoE Active Discovery Terminate (PADT) packet and transmitting the PPPoE Active Discovery Terminate (PADT) packet to said server and checking for a server transmitted PPPoE Active Discovery Terminate (PADT) packet in response thereto*;

and said client transmitting a new a PPPoE Active Discovery Initiation (PADI) packet to said server to reconnect said server and said client, when said client receives the server transmitted PPPoE Active Discovery Terminate (PADT) packet.

In the Office action the Examiner notes that Xu does not explicitly teach extracting a session-ID and loading it into a PPPoE Active Discovery Terminate packet and transmitting the PPPoE Active Discovery Terminate packet to the server.

Here the Examiner fails to appreciate that Xu has already transmitted a PPPoE Active Discovery Terminate (PADT) packet in a previous step 294, **prior to** transmission of the PADI packet in step 295 and checking for a PADO packet in step 295. See Fig. 10.

The Examiner applies Mamakos' teaching of extracting a session-ID and loading it into a PPPoE Active Discovery Terminate packet and transmitting the PPPoE Active Discovery Terminate packet to the server (page 5, section 5.5). The Examiner also applies Nyu's teachings of a client extracting a session-ID from said packet received from said server when it is determined that the packet received from said server is the session packet (para .0052).

Neither Mamakos nor Nyu provide one of ordinary skill in the art a basis of motivation for modifying Xu to move Xu's step 294 transmission of the PADT packet to follow the 'NO' response of step 296, and the Examiner has not suggested such a modification.

We note that Xu teaches setting the session ID field 226 to 0x0000 in the PADI packet sent in step 295. Thus there does not appear to be any need to extract a session ID following

the determination of whether a PADO packet was received.

The mere fact that extraction of a session ID is known in the art, but in inventions different from Xu, does not provide motivation for modifying Xu. Inquiry is not whether each element existed in the prior art, but whether the prior art made obvious the invention as a whole. See *Hartness International, Inc. v. Simplimatic Engineering Co.*, 819 F.2d 1100, 2 USPQ2d 1826 (Fed. Cir. 1987). That a prior art device could be modified to produce the claimed device does not justify an obviousness rejection unless the prior art suggested the modification's desirability. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

Accordingly, claim 1 is not obvious in view of the applied art, and the rejection should be withdrawn.

The Examiner holds that it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Xu to include extracting a session-ID and loading it into a PPPoE Active Discovery Terminate packet and transmitting the PPPoE Active Discovery Terminate packet to the server as taught by Mamakos in order to terminate a PPPoE session.

The Examiner also holds that it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Xu to include client extracting a session-ID for a session packet as taught by Nyu in order to connect to networks of different protocols.

Although Mamakos fairly teaches extracting a session-ID and loading it into a PPPoE Active Discovery Terminate (PADT) packet, such an operation would have been performed at step 294 in XU, not following step 296, as required by Applicant's claim 1.

Although Nyu fairly extracting a session-ID, Nyu does not add to the teaching of Mamakos with respect to the extracted session_ID being set in the PADT packet to indicate which session is to be terminated.

Alone, the step of *said client extracting a session-ID from said packet received from said server when it is determined that the packet received from said server is the session packet* is not new. What is new is this step included with all the other steps as set forth in claim 1, as a whole.

Accordingly, claim 1 is not obvious in view of the applied art, and the rejection should be withdrawn.

Further, if one looks to Xu's paragraph [0063], for the teaching of transmitting a PADI packet following the transmission of the PADT packet (paragraph [0062]), as the Examiner apparently has, with respect to the claimed feature of *said client transmitting a new a PPPoE Active Discovery Initiation (PADI) packet to said server to reconnect said server and said client, when said client receives the server transmitted PPPoE Active Discovery Terminate (PADT) packet*, we find no teaching in the applied art suggesting modifying Xu to include the steps of *said client transmitting a PPPoE Active Discovery*

Initiation (PADI) packet to said server if said client becomes disconnected from said server in a manner other than by transmission of PPPoE Active Discovery Terminate (PADT) packets between said client and said server; and said client checking a packet received from said server, following the transmission of said PPPoE Active Discovery Initiation (PADI) packet, to determine whether the packet received from said server was a PPPoE Active Discovery Offer (PADO) packet or a session packet prior to Xu's transmission of a PADT packet in step 294.

Neither Mamakos or Nyu were applied in these regards.

Accordingly, claim 1 is not obvious in view of the applied art, and the rejection should be withdrawn.

Claims 2-4, 6-9, 11-14, 16 are deemed to be non-obvious for the same reasons as claim 1, thus the rejections thereof should be withdrawn.

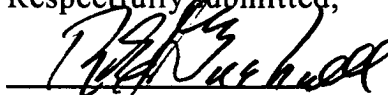
B. Claims 5, 10, 15 are rejected under 35 U.S.C. §103(a) as being unpatentable over Xu in view of Mamkos and Nyu, and further in view of Ogushi *et al.*, U.S. Patent Publication No. 2003/0182434. The Applicant respectfully traverses this rejection for the following reason(s).

Claims 5, 10 and 15 are deemed to be non-obvious for the same reasons as claim 1, thus the rejections thereof should be withdrawn.

The Examiner is respectfully requested to reconsider the application, withdraw the objections and/or rejections and pass the application to issue in view of the above amendments and/or remarks.

No fee is incurred by this Response under 37 C.F.R. §1.116.

Respectfully submitted,



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Date: 8/25/08
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